

Stream Fire Study: Year 2 Report

In 2002, we collected information on amphibians, macroinvertebrates, vegetation, burn severity, and stream habitat conditions across several watersheds in Idaho, Montana, and Oregon.

From June-September, we sampled 56 streams on the Bitterroot, Payette, Rogue, and Siskiyou national forests (Table 1). We sampled streams in the Bitterroot Fire Complex in western Montana, the Diamond Peak Wilderness Fire Complex in central Idaho, and the Quartz Fire in southern Oregon. As part of the prescription burn study, we sampled several tributaries of the South Fork Salmon River located near Yellow Pine, Idaho and streams located near Grayback Mountain on the Siskiyou National Forest (Table 2). Three additional streams in the Rogue National Forest were sampled in 2002, but these streams will not be included in the study due to low amphibian capture rates. Prescription burns are planned for the fall 2003 or spring 2004.

In Idaho and Montana, we captured 1,696 tadpoles and 98 adults and juveniles of the tailed frog (*Ascaphus montanus*) and 39 larvae of the Idaho giant salamander (*Dicamptodon aterrimus*) in 1,152 one-meter transects. In Oregon, we captured 988 tadpoles and 222 adults and juveniles of the tailed frog (*A. truei*) and 663 larvae and 6 adults and juveniles of the giant salamander (*D. tenebrosus*) in 584 one-meter transects. Preliminary results suggest that the number of tailed frog tadpoles was lower in areas with wildfire compared to unburned areas, apparently due to low reproductive success during the year of the fire. However, amphibian densities in burned and unburned watersheds were highly variable among streams and between years. Repeated samples over several years should improve our understanding of amphibian responses to fire.

In 36 of the study streams in Idaho and Oregon, we collected macroinvertebrates from a total of 180 Surber samples. Preliminary analyses indicate that the relative abundance of mayflies (Ephemeroptera) decreased, whereas true flies (Diptera) increased in streams following the fires of 2000 in Idaho. Responses of caddisflies and stoneflies varied from stream to stream, and no clear response to fire was evident.

We recorded standard stream habitat metrics in all streams and collected water samples for major ion analysis at a subset of streams in each of the study areas. Preliminary habitat data indicate that streams in burned watersheds have greater daily fluctuations in water temperature (i.e., higher daily maximums and lower daily minimums) and slightly elevated nutrient levels compared with streams in unburned watersheds.